

From: [Tricia Pfeiffer](#)
To: [Roberts, Kris D.](#)
Bcc: [Johanna Miller](#)
Subject: RE: white stuff
Date: 08/30/2012 11:10 AM

I do not have the bag of "white stuff"...she does. I didn't collect any samples during the visit. Clear liquid in the barrels sound interesting...apparently the owner prior to her worked for a oil company--I want to say Haliburton, but not sure. Let me know if there is anything I can do on my end to help. And thanks for keeping me posted...I hope we figure out if there is any issue with the water.

Tricia Rios Pfeiffer, Engineer
U.S. Environmental Protection Agency-Region8
Watershed & Aquifer Protection Unit
1595 Wynkoop Street
MC: EP-EPR
Denver, Colorado 80202

P: 303-312-6271
P: 866-457-2690 ext 312-6271
F: 303-312-7206

▼ "Roberts, Kris D." ---08/30/2012 11:03:37 AM---So, do you have that, or does Jacki? If Jacki has it, I will get some and run it through our lab.

From: "Roberts, Kris D." <kroberts@nd.gov>
To: Tricia Pfeiffer/R8/USEPA/US@EPA
Date: 08/30/2012 11:03 AM
Subject: RE: white stuff

So, do you have that, or does Jacki?

If Jacki has it, I will get some and run it through our lab.

I have talked some with our EH Chief. We will be collecting samples of all the waters we have tested so far, as well as the oil drum leak site (and estimating volume of same). However, I will have to set a different appointment with Jacki for that. I am not going to have the time to do it all next week. I will, however, get to her place Tues or Wed and set up the sampling appointment, likely for the week following.

Something new: one/some of the barrels apparently a clear liquid in it. I will do a preliminary assessment of the area while there next week and bring heads together after that.

Kris

From: Tricia Pfeiffer [mailto:Pfeiffer.Tricia@epamail.epa.gov]
Sent: Thursday, August 30, 2012 11:33 AM
To: Roberts, Kris D.
Subject: RE: white stuff

Ms. Schilke has a bag of the stuff that was building up on the basement floor..it very light and odd texture. I couldn't make out what it could be; I didn't collect samples, but I spoke to our lab afterwards and they could provide assistance if you need some on breaking it apart and determining what it is...

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yv+LAH8AAAAAASW5hY3RpdmUgaGlkZSBkZXRhaWxzIGZvciAiUm9iZXJ0cywgS3JpcyBELiIgLS0tMDgvMjYvMjAxMiAwNDoyMDDoMSBQTS0tLU9rYXkuIEZyb20geW91ciBkZXNjcmlwdGlvbiwgYXQgc291bmRzIGxpa2UgYSBmaWxhbWVudA== "Roberts, Kris D." ---08/29/2012 04:20:41 PM---Okay. From your description, it sounds like a filamentous algae that was at the surface and develope

From: "Roberts, Kris D." <kroberts@nd.gov>
To: Tricia Pfeiffer/R8/USEPA/US@EPA
Date: 08/29/2012 04:20 PM
Subject: RE: white stuff

Okay.

From your description, it sounds like a filamentous algae that was at the surface and developed an evaporite coat.

From: Tricia Pfeiffer [<mailto:Pfeiffer.Tricia@epamail.epa.gov>]

Sent: Wednesday, August 29, 2012 9:50 AM

To: jacki

Cc: Roberts, Kris

Subject: Re: white stuff

Kris,

If you go by Ms. Schilke's, will you let me know what you learn? I do not have any suggestions about what the white material could be, when I visited though, I saw it and it was very light and fibrous looking.

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P: 303-312-6271

P: 866-457-2690 ext 312-6271

F: 303-312-7206

▼
yv+LAH8AAAAAASW5hY3RpdmUgaGlkZSBkZXRhaWxzIGZvciAiamFja2kiIC0tLTA4LzI5LzlwMTIgMDc6Mjg6MzcgQU0tLS1UaGlzIHdhcyBtb3JlIGxpa2UgSSBoYWQgaGfkIG15IGhhbmRzIGluIHNVbWUga2luZCBvZiBhIGhhcnNoIGNsZQ== "jacki" ---08/29/2012 07:28:37 AM---This was more like I had had my hands in some kind of a harsh cleaner, I was just using the well wat

From: "jacki" <jboid@dja.net>
To: "Roberts, Kris D." <kroberts@nd.gov>
Cc: Tricia Pfeiffer/R8/USEPA/US@EPA
Date: 08/29/2012 07:28 AM
Subject: Re: white stuff

This was more like I had had my hands in some kind of a harsh cleaner, I was just using the well water to clean and pack some outdoor items. Steve showers here and it takes the skin off the bottom of his feet. ? They get so bad he can hardly walk on them. After our incident with the ammonia out here, I can not get any where near bleach, it makes us very sick. I do not buy any products that contain bleach of any kind. I will have to find another solution for this. The water seems to be shorting out anything it comes in contact with, last week it was the hot water heater, this week the well pump at the stock tank. The hot water heater is fairly new, REC installed this several years ago, and the well pump just had new wiring and electric box this spring.

This morning the water is very cloudy white color. Hard to say what it will look like next week it changes almost daily anymore, but you can look at it. I guess I will take a sample and send it to Texas. It does me little good even if it has high sulfates I have no other alternate water for livestock we are forced to use this water.

----- Original Message -----

From: [Roberts, Kris D.](#)

To: [jacki](#)

Sent: Wednesday, August 29, 2012 7:49 AM

Subject: RE: white stuff

I was busy after my last message yesterday, so didn't see this. Did the white stuff show up on your hands while they were wet, or after they dried? Highly mineralized water does tend to create very dry, flakey skin.

Brushing the tank likely won't really take care of it. Try putting on rubber gloves to protect your hands, then put a cup of household bleach in the tank and scrub it down, up under the lip as much as you can as well. Then let it sit for a half hour or so, scrub again, and then flush out all the residue and bleach that you can. If you can't get all the bleach water out on the first pass, then flush it out to waste a couple more times. The cattle likely won't drink until the bleach is pretty much gone. That SHOULD at least slow down the re-growth of whatever it is that is growing there.

I will be in the area next week, Tuesday through Thursday. Would you like me to stop by and take a closer look at this?

Kris Roberts

kroberts@nd.gov

From: jacki [<mailto:jboid@dia.net>]

Sent: Tuesday, August 28, 2012 11:52 AM

To: Roberts, Kris D.

Subject: Re: white stuff

my hands had a coating of this white stuff on them yesterday from getting this water on them, I have skin peeling off of my hands today. This algae stuff grows in the water within hours, I pump it from the well straight to a large plastic tank to haul it. I have to scrub it out of the tank with a brush everyday. I don't have this algae stuff when I have the white stuff in the water? I know algae grows on water that sits for days, but this grows within hours and floats on the top, it is a brown color.

----- Original Message -----

From: [Roberts, Kris D.](#)

To: [jacki](#)

Sent: Tuesday, August 28, 2012 11:32 AM

Subject: RE: white stuff

Do you mean that the white residue took skin off your hands, or the water caused a reaction with your skin?

The fungus-like stuff growing in the water was most likely one or more of many varieties of algae. There are many ways for algae spores to get into a waterer, from wind to the cattle's noses that have been in the creek. A lot of ranchers and other folks with ponds, waterers, and other water features continually battle algae growth.

As to the reason for the white residue coming and going; that usually has more to do with the fluctuating water levels in the waterer and air temperature and humidity. If the cattle are hitting the waterer often enough to keep the levels going up and down fairly quickly, the evaporation doesn't have time to leave the residue at any one place. For that line to show up, the water level has to stay in one place for some period of time so that the evaporation leaves enough residue behind to build up a deposit and dry out. If the water level is going up and down often enough, it just washes the residue back into the water before it builds up. Understand that this isn't big particulates in the water that are sticking to the side. This is minerals in solution at the molecular level size that have to be left behind in sufficient quantity to show up this way.

Another way for it to show up more quickly is if we have very hot, dry conditions. Then evaporation is much more rapid, and thus evaporite build-ups happen and become visible much more quickly.

Kris

From: jacki [<mailto:jboid@dia.net>]
Sent: Tuesday, August 28, 2012 10:53 AM
To: Roberts, Kris D.
Subject: Re: white stuff

Is there a reason why this comes and goes? It was like this some months back, it quit for a while and we then had this strange fungus like stull growing in the water and then just about a week ago started again. The stuff actually took the skin off of my hands yesterday.

----- Original Message -----

From: [Roberts, Kris D.](#)
To: [Jacki](#)
Cc: pfeiffer.tricia@epamail.gov
Sent: Tuesday, August 28, 2012 9:58 AM
Subject: RE: white stuff

Jacki:

From the previous photos, and the one of your shoe, this appears to be an evaporite line of residue, likely either calcium carbonate or a calcium/magnesium/sodium sulfate mineral.

This happens with naturally, highly mineralize waters when the water evaporates and leaves the minerals behind. This is very typical of waters in western North Dakota. It also happens quite often with wet leather, as in your shoes. I have had that happen to my leather boots after having to wade across some streams.

Last week I was investigating a stream near Watford City. The banks of the stream had this same white evaporite build-up, almost continuous. It is happening all over western North Dakota due to the extremely wet years we have had recently. The rain and snow has over-charged the groundwater system over the last 3-4 years, and has, last year and this year, started numerous natural seeps. These seeps are generally slow flowing or just seeping water discharges that evaporate nearly as fast as they seep in many cases. Some flow faster and, due to the highly mineralized character of the water, end up killing off much of the vegetation in their flow path. The vegetation will rebound over time with species and varieties that are tolerant to the mineral concentration, but in the short term it looks very bad, and can have some unfortunate effects.

As an easily seen example, late last summer, I had a call from a lady a few miles east of Williston along 1804. She has had a wonderful row of pines growing for many years (40, or so I remember). They started to die off from the east end of the row. A seep had developed on the slope just above the trees on that end, and she and her family thought there might be an oilfield saltwater line causing it. One of her sons started checking and found that there were no pipelines running through her property, or any other oilfield associated activities occurring nearby. The problem turned out to be one of these natural seeps that have a high alkaline pH of 8-10+. The problem is that pines need an acid pH in the 5-7 range to grow well. This more alkaline seep water discharge has now killed off most of those pines. It makes me really sad to see something like that.

In your case, however, I suggest that you have a new sample of the stock well analyzed for the major ions. Sulfate in water at very high concentrations can have bad effects on cattle. Once you get the results (and Astro-Chem in Williston, across from Wal-Mart, can run that analysis), consult your vet as to the possible effect on the livestock. If he doesn't have good information on that, contact your county extension agent. If all else fails, I may be able to contact someone out of Fargo who has been working with western ND ranchers on sulfate issues.

I hope this helps.

Kris Roberts
kroberts@nd.gov

From: Jacki [<mailto:jboid@dia.net>]
Sent: Tuesday, August 28, 2012 8:01 AM
To: Roberts, Kris D.
Cc: pfeiffer.Tricia@epamail.epa.gov
Subject: white stuff

this white stuff in the water is getting worse this week, this is from running the water over on my shoe while I was filling the tank yesterday. My hands were also covered with the white stuff from getting water on them.

The message is ready to be sent with the following file or link attachments:
IMG_2945.JPG

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